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HOW TO COLLECT INSECTS

THE literature of entomology is very extensive, says a correspondent of the New York *Journal of Commerce*, but it is chiefly literature for those who already know much about the subject. There are entomological societies whose monthly publications, continued from year to year, form the record of all advance in the science, all discoveries of new insects, all corrections of mistakes made in past times. These are of no value to beginners in the study. For them textbooks are not very abundant. Nor is this strange, when we consider how vast is the subject, how expensive practical textbooks must necessarily be, and how few collectors can or will purchase such expensive books.

Illustrations are essential to the value of a text book on such a subject. Description is of small use to a new collector, unless the description be accompanied with picture. Now the number of different moths in the United States, already known and catalogued, is several thousand, and new names are added to the list from month to month. Prof. A. S. Packard a few years ago prepared a descriptive list of Geometrid Moths (moths whose larvæ are the caterpillar known as "measuring worms") with accompanying illustrations, not in colors. This is the most extensively illustrated book on moths published in America, the plates showing between three and four hundred moths; and these are but one division of the great family of American insects called moths. It is plain that no complete guide to the study of American moths can be expected as the result of private enterprise. No publisher is likely to undertake the large expense of thousands of illustrations, even if entomologists could be found who would furnish letter-press.

There are a few books, however, which it is advisable that the young collector procure for careful use. They are French's "Butterflies of the Eastern United States," Harris' "Insects Injurious to Vegetation," and Packard's "Guide to the Study of Insects." These will serve the purpose of lifting his collection from a mere curiosity box into the domain of science, as they will enable him to name and classify many of his objects.

But what seems to be most desired is instruction in the practical matters of catching and preserving moths and butterflies, and I proceed to give this instruction as simply as possible.

It would be idle to waste time in describing a butterfly net. I take it for granted you have one. Never touch a moth or butterfly with your fingers. The surface of the insect is covered with minute scales, laid on like shingles on a roof. That which you call down, easily rubbed off from the wings, consists chiefly of these scales. The color is in them, and it is essential to preserve them, if you wish to preserve the exquisite colors in all their perfection and delicacy. Therefore have a poison-bottle. Get a four-ounce vial with large mouth, and cork to fit. Place in it a half ounce of cyanide of potassium broken into small bits; cover this with water; add powdered plaster of paris, stirring gently till it forms a thick paste; then let it harden in a cake. The result will be a bottle or vial in which is a plaster cake holding the cyanide, whose deadly gas fills the bottle. Insects placed in this atmosphere die in a few seconds. The bottle will last, and do service, through a season.

Some collectors drop chloroform on insects to kill them. A simple poison-bottle can be made wherever there is a drug store, by packing some cotton wool in the bottom of a four-ounce vial, and putting on it each day some sulphuric ether. In a vial or bottle prepared in one or other of these ways catch and kill your insect. If he be already caught in your net put the vial into the net and over the insect. Do not touch him with your hands.

Next you want "stretching-boards." These you can make for yourself, after a description of one. Take a flat bit of board, say three inches wide by six or eight long. On the middle of this, from end to end, glue a strip of cork a half inch wide. On each side of this strip of cork glue or nail a strip of wood an inch thick and two inches wide. You thus have the surfaces of two pieces of wood, with a slit between them an inch deep, and a cork bottom to this slit. To use this, pass a pin through the body of the moth and set this pin in the cork so that the body will stand in the slit, and you can, with a pin, gently and carefully open the wings and lay them out on the wood on each side of the slit. Lift one upper wing and pin it to the wood; lift the under wing and pin it; do the same with the other wings. Cut narrow strips of paper and lay them down over the outstretched wings, pinning them above and below the wings. Thus your insect assumes the attitude of flight, and must be left to dry in this attitude.

According to the size of the insect and the humidity of the air, this drying process will require from three to ten days. When it is complete remove the papers and all pins except the one through the body, and transfer the insect to your collection box or drawer. The persistent enemies of the insect collector are those insects which invade and destroy collections. Among the many devices to overcome these pests there is none better than the use of naphthaline, kept always in each box of a collection. The odor is offensive, but effectual in suppressing the ravages of the enemy.

Beautiful as is a collection of butterflies or of moths, it will perhaps seem incredible to some that a collection of beetles is no less beautiful. The number and variety is very great, and the shapes and colors are subjects of endless curiosity and admiration. For some reason collectors have adopted a rule to pin a beetle by passing a pin through the right wing case, and not through the body of the insect. Very small beetles are fastened (by white shellac dissolved in alcohol) on the points of wedge-shaped pieces of cardboard, the pin going through the broad part of this little wedge. If you have never given any attention to insect life you have before you the possibilities of great enjoyment and much astonishment in the collection of even only a few beetles. You will find them of every hue of the rainbow, and often as brilliant as gems. Beetles are killed in the cyanide bottle, like moths, but it is better for the collector to carry a small vial of alcohol, into which he can drop his beetles.

As to the question where you are to search for insects, it is probably better for you that you learn by experience. Nevertheless, a few general facts may help you to begin this learning. Butterflies are to be taken on sight. They flit in the sunshine, and usually rest when the sun does not shine. Moths have various habits. Some are day moths, enjoying the sunshine and flowers. Some are out in the early twilight, others not till late in the night. Few fly in moonlight. What is the reason for this last-mentioned fact I do not know, nor has it been satisfactorily explained.

Neither can anyone explain why the moth flies to the candle. This habit enables the collector, under favorable circumstances, to make large captures. A bright light set on a covered piazza is very certain to attract hundreds of insects, which can be easily taken with net and bottle. I have made some experiments in this business of attracting moths by lights, and am as yet unable to explain what I have seen. I have on several occasions used a brilliant light with poor success, and then changed, turning the light down very low and leaving it thus for some minutes. When I turned it up I found that a large number had come in to the dim light which had not been attracted by the more brilliant.

It is believed that some moths do not take any food during their short life on wings. On the other hand, the most of them feed like bees on honey, and are attracted by molasses or any sweet syrup spread on boards or on tree trunks. "Sugaring for moths" is the expression applied to this last method of attracting them. It is worth the while of anyone to try it who wishes to gain some idea of the beauty and numbers of the inhabitants of his neighborhood. Moths never seen at a light, never seen anywhere else, are drawn to the sugar or rum and molasses spread on an old fence or on the bark of trees. When they are thus gathered you may walk up to them with lantern in one hand and net in the other, and capture them by scores.

THE SCABBY SCOT

THERE is a scabby Scotchman, engaged in business downtown in this city, who poses as a supreme authority in artistic matters, and who has been guilty of the entirely gratuitous slander of stating that the editor of this paper, who has not the dishonor of knowing him personally at all, is a venal and purchasable person. The files of this paper for the past three years will prove, by the independence of its opinions and the freedom of its expressions, that this or any other blackguard from Sawpits to South street who may make such a statement is a deliberate liar. If this outcast from the dominions of breechclouts and the itch is wise, he will bridle his tongue, or he will certainly encounter a worse affliction than his national psoriasis.

Three new portraits have been added to the collection of famous merchants in the gallery of the Chamber of Commerce, all from the brush of T. W. Wood, President of the National Academy of Design. One is a bust portrait, half life size, of Jacob Lorillard, born in 1774 and died in 1838. The portrait is after Paradise, and has been presented to the Chamber by his grandson, James Muhlenberg Bailey. The second is of Paul Spofford, born in 1792 and died in 1869. He was a member of the firm of Spofford & Tileson. The portrait is a half life size bust, and was presented to the Chamber by the family. The third is of one of its few honorary members, Judge Enoch L. Fancher, Judge of the Court of Arbitration.